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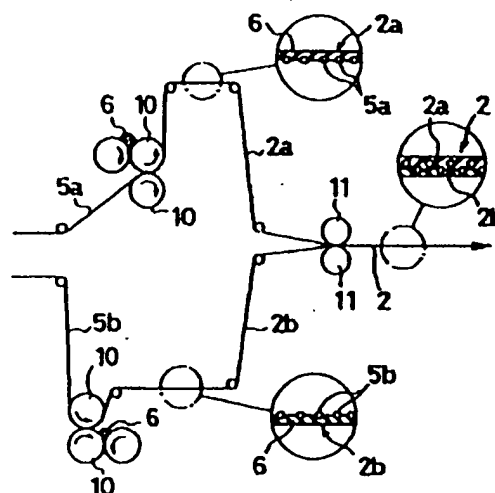
By the present amendment, claims 24-26 and 28 have been cancelled. Upon entry of this amendment, claims 2-18 and 21-23 will be pending in the application.¹

Claim Rejections - 35 USC § 102 / § 103

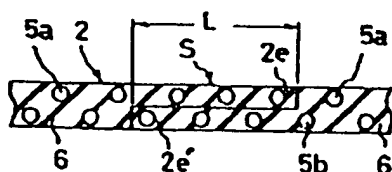
Claims 2-10 and 21-23 have been rejected as being anticipated by Japanese Patent Application 5-294104. Claims 2-10 and 21-23 have been rejected as being obvious over this reference either alone or in view of U.S. Patent No. 4,274,821 to Kiemer and U.S. Patent No. 4,300,878 to Ible.²

The Japanese reference discloses a carcass layer 2 comprising a first row of cords 5a and a second row of cords 5b. (See Figure 2, below.) According to the Examiner's translation, this "layer" is actually two "half layers" 2a and 2b joined together. Specifically, a calendaring roll 10 covers the upper side of the cords 5a with rubber 6 to form the half layer 2a, and another calendaring roll 10 covers the lower side of the cords 5b with rubber 6 to form the half layer 2b. The half layers 2a and 2b are then "laminated" together with a calendaring roll 11. (See Figure 5, below.)

【図5】



【図2】



¹Claims 11-18 have been withdrawn from consideration. These claims depend upon claim 21 whereby, upon allowance of claim 21, rejoinder of claims 11-18 is respectfully requested.

²Specifically, claims 2-10, 21-26, and 28 have been rejected as being unpatentable over Japanese Patent Application 5-294104 in view of U.S. Patent No. 4,274,821 to Kiemer and U.S. Patent No. 4,300,878 to Ible. Claims 8-10, 26, and 28 have been rejected as being unpatentable over Japanese Patent Application 5-294104. Claim 7 has been rejected as being unpatentable over Japanese Patent Application 5-294104.

Accordingly, the Japanese reference does not show or suggest a body ply comprising an elastomeric sheet and a plurality of rows of reinforcement cords embedded in the elastomeric sheet. Instead, this reference specifically teaches two elastomeric sheets, each having one row of reinforcement cords.³ In contrast, independent claim 21 specifies that embedding of the cords is accomplished by extruding an elastomeric material between and around the cords in the plurality of rows.⁴

The Examiner contends that in the Japanese method, “the rubber material still hot from the calender would flow around the cords of both layers, thus providing a reasonable basis for inferring that the body ply of this embodiment would be structurally indistinguishable from the claimed extruded body.” It is respectfully submitted that, although there might be some “flow,” the final profile would be significantly different than that found in the claimed extruded body. In fact, the Japanese reference itself appears to assert that its resultant product is structurally different from body plies that are not made with two separate sheets or layers. The Examiner is also asked to please note that the claims are now limited to a “green tire” and methods of making such a green tire.

Kiemer and Ible are cited as showing that “extrusion is a notoriously well known technique for manufacturing cord reinforced plies for tires” and that it therefore would have been obvious “to use such well known alternative technique to manufacture the body ply.” However, these references could only accommodate one row of reinforcement cords, and there are absolutely no teachings in the prior art on modifying such an extrusion apparatus to accommodate a plurality of rows.

Conclusion

This application is now believed to be in condition for allowance and an early action to that effect is earnestly solicited.

³As was explained in the background portion of applicant's specification, “[t]ypically, body ply material is manufactured by calendering a single row of reinforcement cords in a rubber material,” and “[w]hen a radial tire construction requires a double layer of reinforcement cords in the tire's inner carcass, two separate body plies are commonly used to meet this requirement.” The Japanese reference appears to reflect this “typical” approach as to the incorporation of a plurality of rows of reinforcement cords into a single body ply.

⁴It is respectfully submitted that calender embedding and extrusion embedding result in different respective structural outcomes in the body ply, which would be ascertainable by inspection of the tire.

Respectfully submitted,

RENNER, OTTO, BOISSELLE & SKLAR, LLP

By Cynthia S. Murphy
Cynthia S. Murphy, Reg. No. 33,430

1621 Euclid Avenue
Nineteenth Floor
Cleveland, Ohio 44115
(216) 621-1113

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Date: August 20, 2003

Marian E. Vasquez
Marian E. Vasquez

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~~Amendments to the Claims~~

1. (Cancelled)

c 2. (Previously presented) A green tire as set forth in claim 21, wherein the reinforcement cords in one row are transversely staggered relative to the reinforcement cords in an adjacent row.

3. (Previously presented) A green tire as set forth in claim 2, wherein the plurality of rows are two parallel rows of reinforcement cords.

4. (Previously presented) A green tire as set forth in claim 21, wherein the plurality of rows are two parallel rows of reinforcement cords.

5. (Previously presented) A green tire as set forth in claim 21, wherein the elastomeric sheet is made of rubber.

6. (Previously presented) A green tire as set forth in claim 21, wherein the sheet has a thickness of about 0.5 mm to about 2.0 mm.

7. (Previously presented) A green tire as set forth in claim 6, wherein the sheet has a width of about 150 mm to about 250 mm.

8. (Previously presented) A green tire as set forth in claim 21, wherein each row comprises between about 50 to about 600 cords.

9. (Previously presented) A green tire as set forth in claim 8, wherein the cords each have a diameter of about 0.3 mm to about 2.0 mm.

10. (Previously presented) A green tire as set forth in claim 9, wherein the reinforcement cords in each row are spaced from adjacent reinforcement cords in the same row a distance of about 0.1 mm to about 3.8 mm.

11. (Withdrawn) A method of making the body ply for the green tire of claim 21, comprising the steps of:
introducing the reinforcement cords into a die assembly; and
extruding rubber into a cavity of the die assembly so that rubber is forced around and between the reinforcement cords.

c 12. (Withdrawn) A method as set forth in claim 11, wherein an insert is positioned upstream of the die cavity and wherein the reinforcement cords pass through the insert.

13. (Withdrawn) A method as set forth in claim 12, wherein the insert comprises a body portion with a plurality of passages extending from an entrance end to an exit end and wherein the passages are arranged in a plurality of rows corresponding to the desired placement and spacing of the reinforcement cords.

14. (Withdrawn) A method as set forth in claim 13, wherein the passages are arranged in two parallel rows.

15. (Withdrawn) A method as set forth in claim 14, wherein the openings in one row are transversely staggered relative to the openings in the other row.

16. (Withdrawn) A method as set forth in claim 11, wherein said introducing and said extruding steps comprise:

replacing an insert in an existing machine with an insert having the passages corresponding to the arrangement of reinforcement cords in the elastomeric sheet;

passing the reinforcement cords through the replacement insert and into a die assembly of the existing machine; and

extruding rubber into a cavity of the die assembly so that rubber is forced around and between the reinforcement cords.

17. (Withdrawn) A method as set forth in claim 11, further comprising the step of cutting the body ply material to size to form the body ply.

18. (Withdrawn) A method of making the body ply for the green tire of claim 21, comprising the steps of:

replacing an insert in an existing machine used to make steel belts or single layer body ply material with an insert having the passages corresponding to the arrangement of reinforcement cords in the elastomeric sheet;

passing the reinforcement cords through the replacement insert and into a die assembly of the existing machine; and

extruding rubber into a cavity of the die assembly so that rubber is forced around and between the reinforcement cords.

19. (Cancelled)

20. (Cancelled)

21. (Previously presented) A green tire incorporating a body ply comprising an elastomeric sheet and a plurality of rows of reinforcement cords embedded therein by extruding an elastomeric material between and around the cords in the plurality of rows, the body ply having edges forming an axially extending seam, wherein each of the reinforcement cords has a diameter d , wherein adjacent cords in a first of the plurality of rows are spaced a distance d_{a-a} and wherein adjacent cords in a second of the plurality of rows are spaced a distance d_{b-b} and wherein these distances are equal and uniform.

22. (Original) A green tire as set forth in claim 21, wherein the body ply has sliced edges forming the axially extending seam.

23. (Original) A green tire as set forth in claim 21, wherein the reinforcement cords extend substantially parallel to the axis of the green tire.

24. (Cancelled)

25. (Cancelled)

26. (Cancelled)

27. (Cancelled)

28. (Cancelled)